

General Description

The1405A uses advanced trench technology to provide excellent RDS(ON).It can be used in a wide variety of applications.

Features

- Low On-Resistance
- 100% avalanche tested
- RoHS Compliant

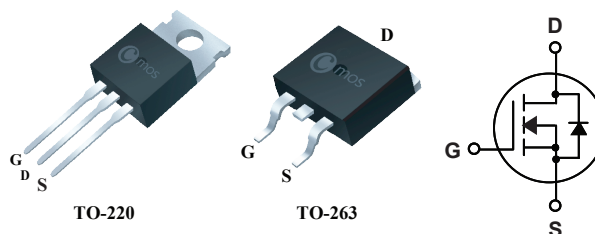
Product Summary

BVDSS	R _{DS(on)} max.	ID
68V	5.5mΩ	120A

Applications

- Motor/ Body Load Control
- Power Train Management
- DC-AC Converters and UPS

TO-220/263 Pin Configuration



Type	Package	Marking
CMP1405A	TO-220	CMP1405A
CMB1405A	TO-263	CMB1405A

Absolute Maximum Ratings

Symbol	Parameter	Rating	Units
V _{DS}	Drain-Source Voltage	68	V
V _{GS}	Gate-Source Voltage	±20	V
I _D @T _C =25°C	Continuous Drain Current, V _{GS} @ 10V	120	A
I _D @T _C =100°C	Continuous Drain Current, V _{GS} @ 10V	96	A
I _{DM}	Pulsed Drain Current	480	A
EAS	Single Pulse Avalanche Energy ¹	800	mJ
P _D @T _C =25°C	Power Dissipation	250	W
T _{STG}	Storage Temperature Range	-55 to 150	°C
T _J	Operating Junction Temperature Range	-55 to 150	°C

Thermal Data

Symbol	Parameter	Typ.	Max.	Unit
R _{θJA}	Thermal Resistance Junction-ambient(PCB mount)	---	62	°C/W
R _{θJC}	Thermal Resistance Junction-case	---	0.5	°C/W

Electrical Characteristics ($T_J=25^{\circ}\text{C}$, unless otherwise noted)

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
BV_{DSS}	Drain-Source Breakdown Voltage	$V_{GS}=0V$, $I_D=250\mu A$	68	---	---	V
$R_{DS(ON)}$	Static Drain-Source On-Resistance	$V_{GS}=10V$, $I_D=30A$	---	4.9	5.5	mΩ
$V_{GS(th)}$	Gate Threshold Voltage	$V_{GS}=V_{DS}$, $I_D=250\mu A$	2	---	4	V
I_{DSS}	Drain-Source Leakage Current	$V_{DS}=60V$, $V_{GS}=0V$	---	---	1	μA
I_{GSS}	Gate-Source Leakage Current	$V_{GS}=\pm 20V$, $V_{DS}=0V$	---	---	±100	nA
g_{fs}	Forward Transconductance	$V_{DS}=10V$, $I_D=10A$	---	25	---	S
R_g	Gate Resistance	$V_{DS}=0V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	2.5	---	Ω
Q_g	Total Gate Charge	$I_D=80A$	---	115	---	nC
Q_{gs}	Gate-Source Charge	$V_{DD}=44V$	---	25	---	
Q_{gd}	Gate-Drain Charge	$V_{GS}=10V$	---	50	---	
$T_{d(on)}$	Turn-On Delay Time	$V_{DD}=30V$	---	25	---	ns
T_r	Rise Time	$I_D=80A$	---	24	---	
$T_{d(off)}$	Turn-Off Delay Time	$R_G=2.4\Omega$	---	50	---	
T_f	Fall Time	$V_{GS}=10V$	---	23	---	
C_{iss}	Input Capacitance	$V_{DS}=25V$, $V_{GS}=0V$, $f=1\text{MHz}$	---	6500	---	pF
C_{oss}	Output Capacitance		---	450	---	
C_{rss}	Reverse Transfer Capacitance		---	370	---	

Diode Characteristics

Symbol	Parameter	Conditions	Min.	Typ.	Max.	Unit
I_S	Continuous Source Current	$V_G=V_D=0V$, Force Current	---	---	120	A
I_{SM}	Pulsed Source Current		---	---	480	A
V_{SD}	Diode Forward Voltage	$V_{GS}=0V$, $I_S=45A$, $T_J=25^{\circ}\text{C}$	---	0.89	1.2	V

Note :

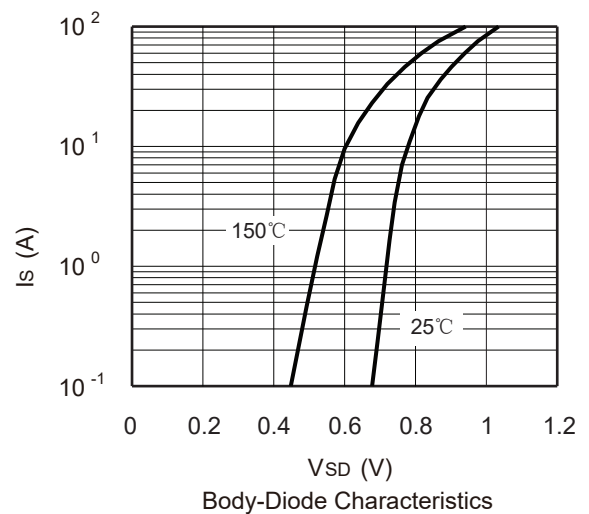
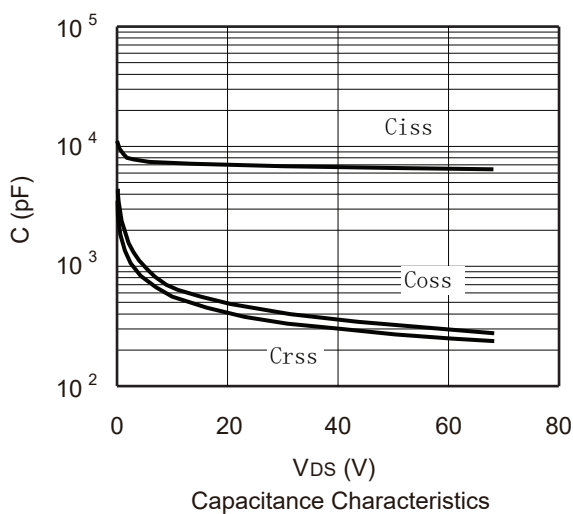
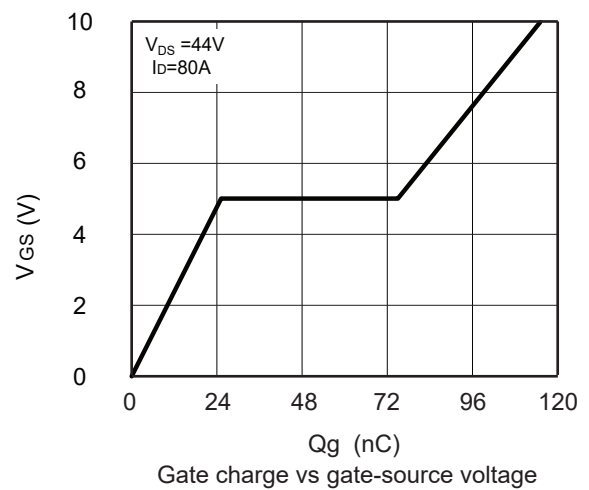
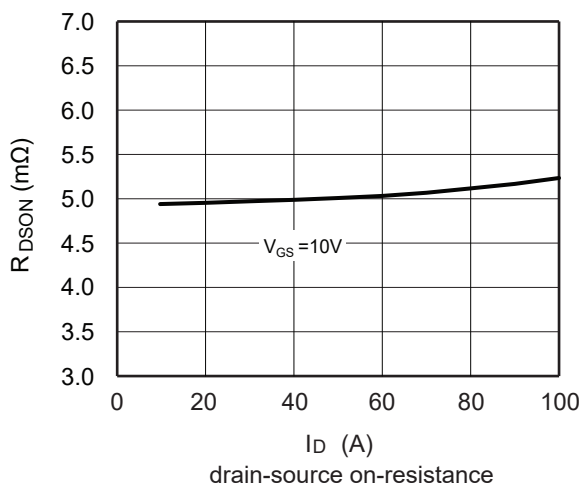
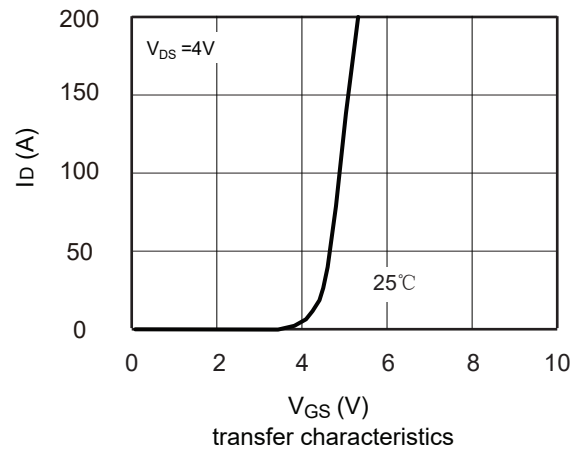
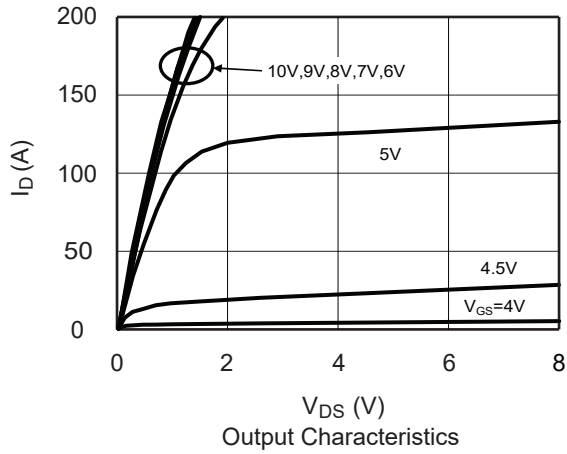
1. The test condition is $V_{DS}=30V$, $V_{GS}=10V$, $L=1\text{mH}$, $I_D=40A$.

This product has been designed and qualified for the consumer market.

Cmos assumes no liability for customers' product design or applications.

Cmos reserves the right to improve product design ,functions and reliability without notice. Please refer to the latest version of specification.

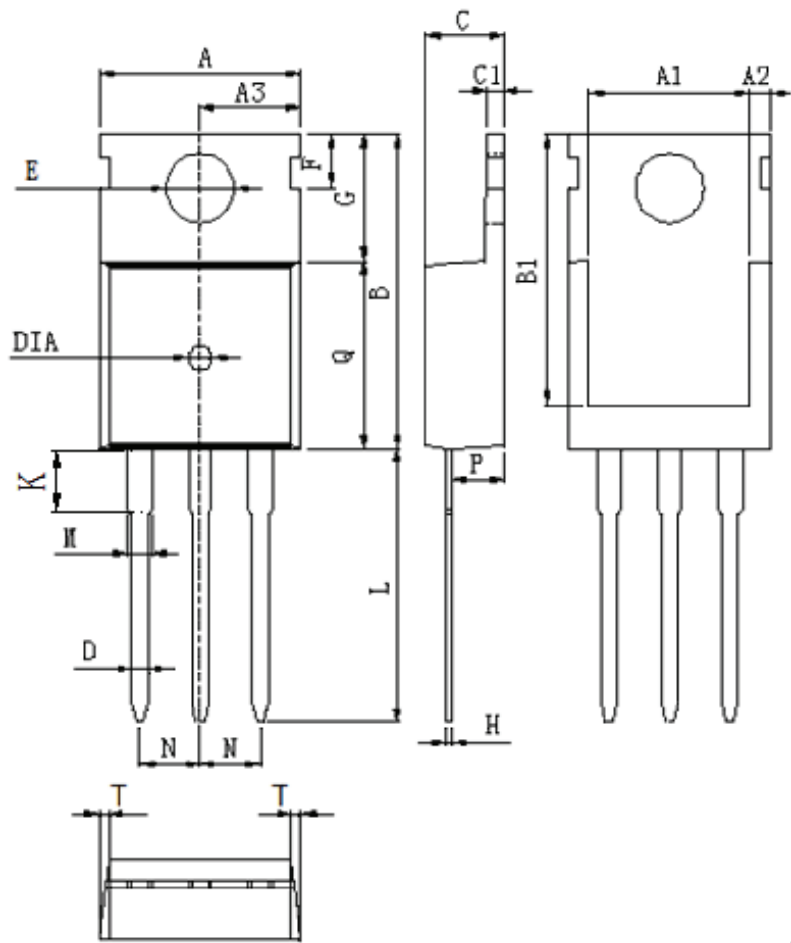
Typical Characteristics



Package Dimension

TO-220

Unit :mm

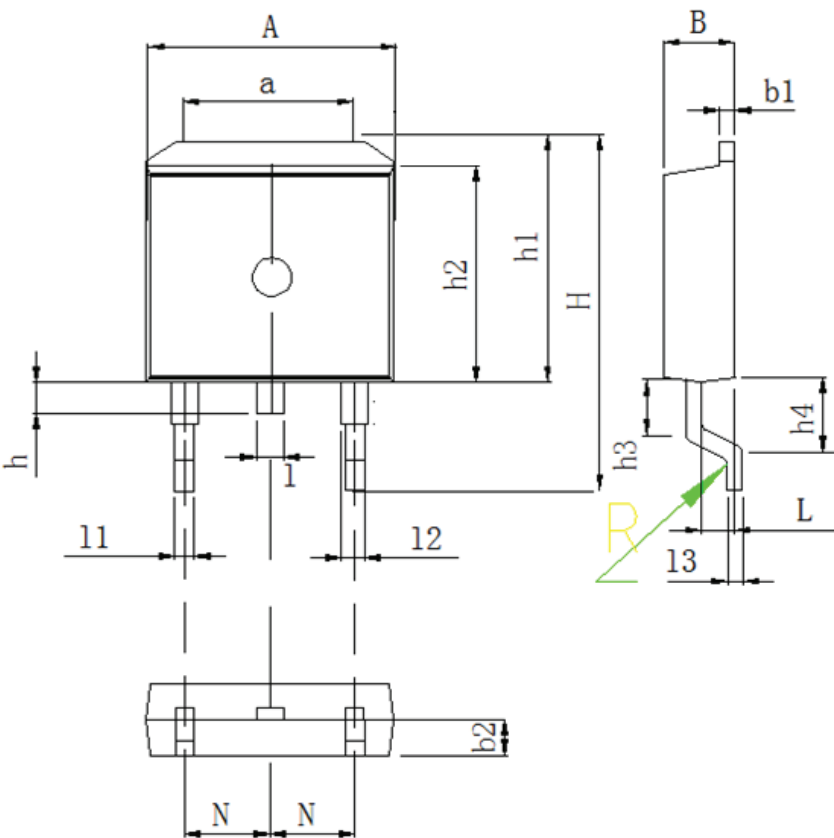


DIM	MILLIMETERS
A	10.0±0.3
A1	8.64±0.2
A2	1.15±0.1
A3	5.0±0.2
B	15.8±0.4
B1	13.2±0.3
C	4.56±0.1
C1	1.3±0.2
D	0.8±0.2
E	3.6±0.2
F	2.95±0.3
G	6.5±0.3
H	0.5±0.1
K	3.1±0.2
L	13.2±0.4
M	1.25±0.1
N	2.54±0.1
P	2.4±0.3
Q	9.0±0.3
T	W:0.35
DIA	⊙1.5 (deep 0.2)

Package Dimension

TO-263

Unit :mm



DIM	MILLIMETERS
A	9.8±0.2
a	7.4±0.4
B	4.5±0.2
b1	1.3±0.05
b2	2.4±0.2
H	15.5±0.3
h	1.54±0.2
h1	10.5±0.2
h2	9.2±0.1
h3	1.54±0.2
h4	2.7±0.2
L	2.4±0.2
1	1.3±0.1
11	0.8±0.1
12	1.3±0.1
13	0.5±0.1
N	2.54±0.1
R	0.5R±0.05